

Application No. 09/348,494
Amendment dated April 12, 2004
Reply to Office Action dated December 10, 2003

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Amendments to the Claims

The listing of claims below replaces all prior versions and listings of claims.

Listing of Claims

Claims 1 and 2 (cancelled)

Claim 3 (previously presented): A mobile station comprising:

a first antenna;

a first radio frequency processing circuit receiving and processing signals
from said first antenna;

a second antenna;

a second radio frequency processing circuit receiving and processing signals
from second antenna; and

FI a base band processing circuit receiving processed radio frequency signals
from said first radio frequency processing circuit and from said second radio
frequency processing circuit for diversity, and providing a control signal to said
second radio frequency processing circuit to selectively activate and deactivate said
second radio frequency processing circuit based on a determination as to whether
diversity is appropriate, wherein said control signal generated by said base band
processing circuit is controlled by a control signal from a base station with which said
mobile station is in communication.

Claim 4 (original): A mobile station in accordance with claim 3 wherein the
base station will increase or decrease its output power to said mobile station after
transmitting said control signal until a sufficient signal quality of the communication
link.

Claim 5 (previously presented): A mobile station comprising:

a first antenna;

a first radio frequency processing circuit receiving and processing signals
from said first antenna;

a second antenna;

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a second radio frequency processing circuit receiving and processing signals from second antenna; and

a base band processing circuit receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity, and providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on a determination as to whether diversity is appropriate, wherein said mobile station informs a base station of its deactivation of diversity so that the base station will adjust its output power until a sufficient signal quality is achieved in accordance with the non-diversity mode.

Claim 6 (currently amended): A mobile station comprising:

a first antenna;

a first radio frequency processing circuit receiving and processing signals from said first antenna;

a second antenna;

a second radio frequency processing circuit receiving and processing signals from second antenna; and

a base band processing circuit receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity, and providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on a determination as to whether diversity is appropriate, wherein said first radio frequency processing circuit also transmits signals from said mobile station, and

A mobile station in accordance with claim 1 wherein said determination as to whether diversity is appropriate is based on a signal quality of demodulated processed radio frequency signals a demodulated signal.

Claim 7 (currently amended): A mobile station comprising:

a first antenna;

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a first radio frequency processing circuit receiving and processing signals from said first antenna;
a second antenna;
a second radio frequency processing circuit receiving and processing signals from second antenna; and

a base band processing circuit receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity, and providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on a determination as to whether diversity is appropriate, wherein said first radio frequency processing circuit also transmits signals from said mobile station, and
A mobile station in accordance with claim 1 wherein said determination as to whether diversity is appropriate is based on a level comparison diversity technique of demodulated processed radio frequency signals.

Claim 8 (currently amended): A mobile station comprising:

a first antenna;
a first radio frequency processing circuit receiving and processing signals from said first antenna;
a second antenna;
a second radio frequency processing circuit receiving and processing signals from second antenna; and
a base band processing circuit receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity, and providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on a determination as to whether diversity is appropriate, wherein said first radio frequency processing circuit also transmits signals from said mobile station, and

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~~A mobile station in accordance with claim 1 wherein said determination as to whether diversity is appropriate is based on a likelihood comparison technique of demodulated processed radio frequency signals.~~

Claim 9 (currently amended): A mobile station comprising:

a first antenna;

a first radio frequency processing circuit receiving and processing signals from said first antenna;

a second antenna;

a second radio frequency processing circuit receiving and processing signals from second antenna; and

a base band processing circuit receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity, and providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on a determination as to whether diversity is appropriate, wherein said first radio frequency processing circuit also transmits signals from said mobile station, and

~~A mobile station in accordance with claim 1 wherein said determination as to whether diversity is appropriate is based on a measure of bit error rate of demodulated processed radio frequency signals a demodulated signal.~~

Claim 10 (currently amended): A mobile station comprising:

a first antenna;

a first radio frequency processing circuit receiving and processing signals from said first antenna;

a second antenna;

a second radio frequency processing circuit receiving and processing signals from second antenna; and

a base band processing circuit receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity, and providing a control signal to said

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second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on a determination as to whether diversity is appropriate, wherein said first radio frequency processing circuit also transmits signals from said mobile station, and

~~A mobile station in accordance with claim 1 wherein said determination as to whether diversity is appropriate is based on a measure of frame error rate of demodulated processed radio frequency signals a demodulated signal.~~

Claim 11 (currently amended): A mobile station comprising:

a first antenna;

a first radio frequency processing circuit receiving and processing signals from said first antenna;

a second antenna;

a second radio frequency processing circuit receiving and processing signals from second antenna; and

a base band processing circuit receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity, and providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on a determination as to whether diversity is appropriate, wherein said first radio frequency processing circuit also transmits signals from said mobile station, and

~~A mobile station in accordance with claim 1 wherein said determination as to whether diversity is appropriate is based on a measure of a signal to interference ratio of demodulated processed radio frequency signals a demodulated signal.~~

Claim 12 (currently amended): A mobile station comprising:

a first antenna;

a first radio frequency processing circuit receiving and processing signals from said first antenna;

a second antenna;

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a second radio frequency processing circuit receiving and processing signals from second antenna; and

a base band processing circuit receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity, and providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on a determination as to whether diversity is appropriate, wherein said first radio frequency processing circuit also transmits signals from said mobile station, and

~~A mobile station in accordance with claim 1 wherein said determination as to whether diversity is appropriate is based on a measure of the number of re-transmissions required~~ based on demodulated processed radio frequency signals.

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Claim 13 (canceled)

Claim 14 (previously presented): A method of controlling diversity in a mobile station, comprising:

receiving a radio signal on a first antenna;

processing radio signals from said first antenna in a first radio frequency processing circuit;

receiving radio signals in a second antenna;

processing radio signals from the first antenna in a second radio frequency processing circuit;

receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity in a base band processing circuit;

determining whether diversity is appropriate; and

providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on said determination as to whether diversity is appropriate,

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further comprising controlling the generation by said base band processing circuit of said control signal by a control signal from a base station with which said mobile station is in communication.

Claim 15 (original): A method in accordance with claim 14 further comprising adjusting an output power of the base station to said mobile station after transmitting said control signal until a sufficient signal quality of the communication link.

Claim 16 (previously presented): A method of controlling diversity in a mobile station, comprising:

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- receiving a radio signal on a first antenna;
- processing radio signals from said first antenna in a first radio frequency processing circuit;
- receiving radio signals in a second antenna;
- processing radio signals from the first antenna in a second radio frequency processing circuit;
- receiving processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity in a base band processing circuit;
- determining whether diversity is appropriate; and
- providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on said determination as to whether diversity is appropriate, further comprising said mobile station informing a base station of its deactivation of diversity so that the base station will adjust its output power until a sufficient signal quality is achieved in accordance with the non-diversity mode.

Claim 17 (currently amended): A method of controlling diversity in a mobile station, comprising:

- receiving a radio signal on a first antenna;
- processing radio signals from said first antenna in a first radio frequency processing circuit;

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receiving radio signals in a second antenna;
processing radio signals from the second antenna in a second radio
frequency processing circuit;
receiving and combining processed radio frequency signals from said first
radio frequency processing circuit and from said second radio frequency processing
circuit for diversity in a base band processing circuit;
determining whether diversity is appropriate based on demodulated
processed radio frequency signals; and
providing a control signal to said second radio frequency processing circuit to
selectively activate and deactivate said second radio frequency processing circuit
based on said determination as to whether diversity is appropriate.
A method in accordance with claim 13 wherein said determination as to whether
diversity is appropriate includes measuring a signal quality of a demodulated signal.

Claim 18 (currently amended): A method of controlling diversity in a mobile
station, comprising:

receiving a radio signal on a first antenna;
processing radio signals from said first antenna in a first radio frequency
processing circuit;
receiving radio signals in a second antenna;
processing radio signals from the second antenna in a second radio
frequency processing circuit;
receiving and combining processed radio frequency signals from said first
radio frequency processing circuit and from said second radio frequency processing
circuit for diversity in a base band processing circuit;
determining whether diversity is appropriate based on demodulated
processed radio frequency signals; and
providing a control signal to said second radio frequency processing circuit to
selectively activate and deactivate said second radio frequency processing circuit
based on said determination as to whether diversity is appropriate.
A method in accordance with claim 13 wherein said determination as to whether
diversity is appropriate includes employing a level comparison diversity technique.

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Claim 19 (currently amended): A method of controlling diversity in a mobile station, comprising:

receiving a radio signal on a first antenna;

processing radio signals from said first antenna in a first radio frequency processing circuit;

receiving radio signals in a second antenna;

processing radio signals from the second antenna in a second radio frequency processing circuit;

receiving and combining processed radio frequency signals from said first radio frequency processing circuit and from said second radio frequency processing circuit for diversity in a base band processing circuit;

determining whether diversity is appropriate based on demodulated processed radio frequency signals; and

providing a control signal to said second radio frequency processing circuit to selectively activate and deactivate said second radio frequency processing circuit based on said determination as to whether diversity is appropriate.

~~A method in accordance with claim 13 wherein said determination as to whether diversity is appropriate includes employing a likelihood comparison technique.~~

Claim 20 (canceled)